6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R03-OAR-2012-0144, FRL- 9640-7]

Approval and Promulgation of Air Quality Implementation Plans; State of Maryland; Regional Haze State Implementation Plan

AGENCY: Environmental Protection Agency (EPA)

ACTION: Proposed rule.

SUMMARY: EPA is proposing to approve a revision to the Maryland State Implementation Plan (SIP) submitted by the State of Maryland through the Maryland Department the Environment (MDE) on February 13, 2012, that addresses regional haze for the first implementation period. This revision addresses the requirements of the Clean Air Act (CAA) and EPA's rules that require states to prevent any future, and remedy any existing, anthropogenic impairment of visibility in mandatory Class I areas caused by emissions of air pollutants from numerous sources located over a wide geographic area (also referred to as the "regional haze program"). States are required to assure reasonable progress toward the national goal of achieving natural visibility conditions in Class I areas. EPA is proposing to determine that the Regional Haze plan submitted by Maryland satisfies the requirements of the CAA. EPA is taking this action pursuant to those provisions of the CAA. EPA is also proposing to approve this revision as meeting the infrastructure requirements relating to visibility protection for the 1997 8-Hour Ozone National Ambient Air Quality Standard (NAAQS) and the 1997 and 2006 fine particulate matter ($PM_{2.5}$) NAAQS.

DATES: Comments must be received on or before [insert date 30 days from the date of publication in the Federal Register].

ADDRESSES: Submit your comments, identified by Docket ID Number **EPA-R03-OAR-2012-0144** by one of the following methods:

A. www.regulations.gov. Follow the on-line instructions for submitting comments.

B. E-mail: fernandez.cristina@epa.gov

C. Mail: EPA-R03-OAR-2012-0144, Cristina Fernandez, Associate Director, Office of Air Program Planning, Mailcode 3AP30, U.S. Environmental Protection Agency, Region III, 1650 Arch Street, Philadelphia, Pennsylvania 19103.

D. Hand Delivery: At the previously-listed EPA Region III address. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. **EPA-R03-OAR-2012-0144**. EPA's policy is that all comments received will be included in the public docket without change, and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through www.regulations.gov or e-mail. The www.regulations.gov website is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through

www.regulations.gov, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

Docket: All documents in the electronic docket are listed in the www.regulations.gov index. Although listed in the index, some information is not publicly available, i.e., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in www.regulations.gov or in hard copy during normal business hours at the Air Protection Division, U.S. Environmental Protection Agency, Region III, 1650 Arch Street, Philadelphia, Pennsylvania 19103. Copies of the State submittal are available at the Maryland Department of the Environment, 1800 Washington Boulevard, Baltimore, Maryland 21230.

FOR FURTHER INFORMATION CONTACT: Jacqueline Lewis, (215) 814-2037, or by email at mailto:lewis.jacqueline@epa.gov.

SUPPLEMENTARY INFORMATION: On February 13, 2012, the MDE submitted a revision to its SIP to address Regional Haze for the first implementation period. Throughout this document, whenever "we," "us," or "our" is used, we mean EPA.

Table of Contents

I. What is the Background for EPA's Proposed Action?

A. The Regional Haze Problem

Regional haze is visibility impairment that is produced by a multitude of sources and activities which are located across a broad geographic area and emit $PM_{2.5}$ (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (e.g., sulfur dioxide (SO_2), nitrogen oxides (NO_x), and in some cases, ammonia (NH_3) and volatile organic compounds (VOC)). Fine particle precursors react in the atmosphere to form fine particulate matter, which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that one can see. $PM_{2.5}$ can also cause serious health effects and mortality in humans and contributes to environmental effects such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the "Interagency Monitoring of Protected Visual Environments" (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national park and wilderness areas. The average visual range[1] in many Class I areas (i.e., national parks and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States is 100-

[1]Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.

150 kilometers or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range is less than 30 kilometers or about one-fifth of the visual range that would exist under estimated natural conditions (64 FR 35714, July 1, 1999).

B. Background Information

In section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the "prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas[2] which impairment results from manmade air pollution." On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is "reasonably attributable" to a single source or small group of sources, i.e., "reasonably attributable visibility impairment" (45 FR 80084). These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling, and scientific knowledge about the relationships between pollutants and visibility impairment were improved. Congress added section 169B to the CAA in 1990 to address regional haze issues. EPA promulgated a rule to address regional haze on July 1, 1999 (64 FR 35714), the RHR. The RHR revised the existing visibility regulations to integrate into the regulation provisions

[2]Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value (44 FR 69122, November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to ''mandatory Class I Federal areas." Each mandatory Class I Federal area is the responsibility of a ''Federal Land Manager.'' 42 U.S.C. 7602(i). When we use the term "Class I area" in this action, we mean a "mandatory Class I Federal area."

addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in EPA's visibility protection regulations at 40 CFR 51.300-309. Some of the main elements of the regional haze requirements are summarized in section II of this notice. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia, and the Virgin Islands.[3] Section 51.308(b) requires states to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.

C. Roles of Agencies in Addressing Regional Haze

Successful implementation of the regional haze program will require long-term regional coordination among states, tribal governments, and various federal agencies. As noted above, pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, to effectively address the problem of visibility impairment in Class I areas, states need to develop strategies in coordination with one another, taking into account the effect of emissions from one jurisdiction on the air quality in another.

Because the pollutants that lead to regional haze can originate from sources located across broad geographic areas, EPA has encouraged the states and tribes across the United States to address visibility impairment from a regional perspective. Five regional planning organizations (RPOs) were developed to address regional haze and related issues. The RPOs first evaluated technical information to better understand how their states and tribes impact Class I areas across the

[3]Albuquerque/Bernalillo County in New Mexico must also submit a regional haze SIP to completely satisfy the requirements of section 110(a)(2)(D) of the CAA for the entire State of New Mexico under the New Mexico Air Quality Control Act (section 74-2-4).

country, and then pursued the development of regional strategies to reduce emissions of particulate matter (PM) and other pollutants leading to regional haze.

The Mid-Atlantic Region Air Management Association (MARAMA), the Northeast States for Coordination Air Use Management (NESCAUM), and the Ozone Transport Commission (OTC) established the Mid-Atlantic/Northeast Visibility Union (MANE-VU) regional planning organization. MANE-VU is a collaborative effort of state governments, tribal governments, and various federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility, and other air quality issues in the Mid-Atlantic and Northeast corridor of the United States. Member states and tribal governments include: Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Penobscot Indian Nation, Rhode Island, St. Regis Mohawk Tribe, and Vermont.

D. Interstate Transport for Visibility

Sections 110(a)(1) and 110(a)(2)(D)(i)(II) of the CAA require that within three years of promulgation of a NAAQS, a state must ensure that its SIP, among other requirements, "contains adequate provisions prohibiting any source or other types of emission activity within the state from emitting any air pollutant in amounts which will interfere with measures required to be included in the applicable implementation plan for any other State to protect visibility." Similarly, section 110(a)(2)(J) requires that such SIP "meet the applicable requirements of part C of (Subchapter I) (relating to visibility protection)."

EPA's 2006 Guidance, entitled "Guidance for State Implementation Plan (SIP) Submissions to Meet Current Outstanding Obligations Under section 110(a)(2)(D)(i) for the 8-Hour Ozone and $PM_{2.5}$ National Ambient Air Quality Standards," recognized the possibility that a state could potentially meet the visibility portions of section 110(a)(2)(D)(i)(II) through its submission of a Regional Haze SIP, as required by sections 169A and 169B of the CAA. EPA's 2009 guidance, entitled "Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS)," recommended that a state could meet such visibility requirements through its Regional Haze SIP. EPA's rationale supporting this recommendation was that the development of the regional haze SIPs was intended to occur in a collaborative environment among the states, and that through this process states would coordinate on emissions controls to protect visibility on an interstate basis. The common understanding was that, as a result of this collaborative environment, each state would take action to achieve the emissions reductions relied upon by other states in their reasonable progress demonstrations under the RHR. This interpretation is consistent with the requirement in the RHR that a state participating in a regional planning process must include "all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process." 40 CFR 51.308(d)(3)(ii).

The regional haze program, as reflected in the RHR, recognizes the importance of addressing the long-range transport of pollutants for visibility and encourages states to work together to develop plans to address haze. The regulations explicitly require each state to address its "share" of the emission reductions needed to meet the reasonable progress goals for neighboring Class I areas. States working together through a regional planning process are required to address an agreed

upon share of their contribution to visibility impairment in the Class I areas of their neighbors. 40 CFR 51.308(d)(3)(ii). Given these requirements, appropriate regional haze SIPs will contain measures that will achieve these emissions reductions and will meet the applicable visibility related requirements of section 110(a)(2).

As a result of the regional planning efforts in the MANE-VU, all states in the MANE-VU region contributed information to a Technical Support System (TSS) which provides an analysis of the causes of haze, and the levels of contribution from all sources within each state to the visibility degradation of each Class I area. The MANE-VU states consulted in the development of reasonable progress goals, using the products of this technical consultation process to co-develop their reasonable progress goals for the MANE-VU Class I areas. The modeling done by MANE-VU relied on assumptions regarding emissions over the relevant planning period and embedded in these assumptions were anticipated emissions reductions in each of the states in MANE-VU, including reductions from BART and other measures to be adopted as part of the state's long term strategy for addressing regional haze. The reasonable progress goals in the regional haze SIPs that have been prepared by the states in the MANE-VU region are based, in part, on the emissions reductions from nearby states that were agreed on through the MANE-VU process.

Maryland submitted a Regional Haze SIP on February 13, 2012, to address the requirements of the RHR and the related visibility requirements set forth in section 110(a)(2)(D)(i)(II) and 110(a)(2)(J). On July 27, 2007, Maryland submitted its original 1997 Ozone NAAQS infrastructure SIP and on April 3, 2008, Maryland submitted its original 1997 $PM_{2.5}$ NAAQS infrastructure SIP. On July 21, 2010, Maryland submitted an infrastructure SIP for the 2006

$PM_{2.5}$ NAAQS. In its Regional Haze SIP, Maryland indicated that it will meet its obligations related to visibility pursuant to section 110(a)(2) of the CAA, including but not limited to, section 110(a)(2)(D)(i)(II) and 110(a)(2)(J). While these SIP submittals address the visibility requirements of section 110(a)(2)(D)(i)(II) and 110(a)(2)(J), the February 13, 2012 submittal supersedes these previous submittals. EPA has reviewed Maryland's Regional Haze SIP and, as explained in section IV of this action, proposes to find that Maryland's Regional Haze submittal meets the portions of the requirements of the CAA sections 110(a)(2) relating to visibility protection for the 1997 8-Hour Ozone NAAQS and the 1997 and 2006 $PM_{2.5}$ NAAQS.

II. What Are the Requirements for the Regional Haze SIPs?

A. The CAA and the Regional Haze Rule (RHR)

Regional haze SIPs must assure reasonable progress towards the national goal of achieving natural visibility conditions in Class I areas. Section 169A of the CAA and EPA's implementing regulations require states to establish long-term strategies for making reasonable progress toward meeting this goal. Implementation plans must also give specific attention to certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962, and require these sources, where appropriate, to install BART controls for the purpose of eliminating or reducing visibility impairment. The specific regional haze SIP requirements are discussed in further detail in this notice.

B. Determination of Baseline, Natural, and Current Visibility Conditions

The RHR establishes the deciview as the principal metric or unit for expressing visibility. This visibility metric expresses uniform changes in haziness in terms of common increments across

the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility expressed in deciviews is determined by using air quality measurements to estimate light extinction and then transforming the value of light extinction using a logarithm function. The deciview is a more useful measure for tracking progress in improving visibility than light extinction itself because each deciview change is an equal incremental change in visibility perceived by the human eye. Most people can detect a change in visibility at one deciview.[4] The deciview is used in expressing RPGs (which are interim visibility goals towards meeting the national visibility goal), defining baseline, current, and natural conditions, and tracking changes in visibility. The regional haze SIPs must contain measures that ensure "reasonable progress" toward the national goal of preventing and remedying visibility impairment in Class I areas caused by anthropogenic air pollution by reducing anthropogenic emissions that cause regional haze. The national goal is a return to natural conditions, i.e., anthropogenic sources of air pollution would no longer impair visibility in Class I areas.

To track changes in visibility over time at each of the 156 Class I areas covered by the visibility program (40 CFR 81.401-437), and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area at the time of each regional haze SIP submittal and periodically review progress every five years midway through each 10-year implementation period. To do this, the RHR requires states to determine the degree of impairment (in deciviews) for the average of the 20% least impaired ("best") and 20% most impaired ("worst") visibility days over a specified time period at each of their Class I areas. In addition, states must also develop an estimate of natural visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by

[4]The preamble to the RHR provides additional details about the deciview (64 FR 35714, 35725, July 1, 1999).

estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. EPA has provided guidance to states regarding how to calculate baseline, natural and current visibility conditions in documents titled, EPA's *Guidance for Estimating Natural Visibility conditions under the Regional Haze Rule*, September 2003, (EPA-454/B-03-005 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_envcurhr_gd.pdf), (hereinafter referred to as "EPA's 2003 Natural Visibility Guidance") and *Guidance for Tracking Progress Under the Regional Haze Rule,* September 2003, (EPA-454/B-03-004 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_tpurhr_gd.pdf), (hereinafter referred to as "EPA's 2003 Tracking Progress Guidance").

For the first regional haze SIPs that were due by December 17, 2007, "baseline visibility conditions" were the starting points for assessing "current" visibility impairment. Baseline visibility conditions represent the degree of visibility impairment for the 20% least impaired days and 20% most impaired days for each calendar year from 2000 to 2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area, based on the average of annual values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress made. In general, the 2000-2004 baseline period is considered the time from which improvement in visibility is measured.

C. Determination of Reasonable Progress Goals (RPGs)

The vehicle for ensuring continuing progress towards achieving the natural visibility goal is the submission of a series of regional haze SIPs from the states that establish two RPGs (i.e., two distinct goals, one for the "best" and one for the "worst" days) for every Class I area for each approximately 10-year implementation period. The RHR does not mandate specific milestones or rates of progress, but instead calls for states to establish goals that provide for "reasonable progress" toward achieving natural (i.e., "background") visibility conditions. In setting RPGs, states must provide for an improvement in visibility for the most impaired days over the approximately 10-year period of the SIP, and ensure no degradation in visibility for the least impaired days over the same period.

States have significant discretion in establishing RPGs, but are required to consider the following factors established in section 169A of the CAA and in EPA's RHR at 40 CFR 51.308(d)(1)(i)(A): (1) the costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. States must demonstrate in their SIPs how these factors are considered when selecting the RPGs for the best and worst days for each applicable Class I area. States have considerable flexibility in how they take these factors into consideration, as noted in EPA's *Guidance for Setting Reasonable Progress Goals under the Regional Haze Program,* ("EPA's Reasonable Progress Guidance"), July 1, 2007, memorandum from William L. Wehrum, Acting Assistant Administrator for Air and Radiation, to EPA Regional Administrators, EPA Regions 1-10 (pp. 4-2, 5-1). In setting the RPGs, states must also consider the rate of progress needed to reach natural visibility conditions by 2064 (referred to as the

"uniform rate of progress" or the "glidepath") and the emission reduction measures needed to achieve that rate of progress over the 10-year period of the SIP. Uniform progress towards achievement of natural conditions by the year 2064 represents a rate of progress which states are to use for analytical comparison to the amount of progress they expect to achieve. In setting RPGs, each state with one or more Class I areas ("Class I state") must also consult with potentially "contributing states," i.e., other nearby states with emission sources that may be affecting visibility impairment at the Class I state's areas. 40 CFR 51.308(d)(1)(iv).

D. Best Available Retrofit Technology (BART)

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal, including a requirement that certain categories of existing major stationary sources[5] built between 1962 and 1977 procure, install, and operate the "Best Available Retrofit Technology" as determined by the state. Under the RHR, states are directed to conduct BART determinations for such "BART- eligible" sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART.

[5]The set of "major stationary sources" potentially subject to BART is listed in CAA section 169A(g)(7).

On July 6, 2005, EPA published the *Guidelines for BART Determinations Under the Regional Haze Rule* at Appendix Y to 40 CFR part 51 (hereinafter referred to as the "BART Guidelines") to assist states in determining which of their sources should be subject to the BART requirements and in determining appropriate emission limits for each applicable source. In making a BART determination for a fossil fuel-fired electric generating plant with a total generating capacity in excess of 750 megawatts (MW), a state must use the approach set forth in the BART Guidelines. A state is encouraged, but not required, to follow the BART Guidelines in making BART determinations for other types of sources.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are SO_2, NO_x, and PM. EPA has stated that states should use their best judgment in determining whether VOC or NH_3 compounds impair visibility in Class I areas.

Under the BART Guidelines, states may select an exemption threshold value for their BART modeling, below which a BART eligible source would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emission sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. Any exemption threshold set by the state should not be higher than 0.5 deciview.

In their SIPs, states must identify potential BART sources, described as "BART eligible sources" in the RHR, and document their BART control determination analyses. In making BART determinations, section 169A(g)(2) of the CAA requires that states consider the following factors: (1) the costs of compliance; (2) the energy and non-air quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. States are free to determine the weight and significance to be assigned to each factor.

A regional haze SIP must include source-specific BART emission limits and compliance schedules for each source subject to BART. Once a state has made its BART determination, the BART controls must be installed and in operation as expeditiously as practicable, but no later than five years after the date of EPA approval of the regional haze SIP. CAA section 169(g)(4)). 40 CFR 51.308(e)(1)(iv). In addition to what is required by the RHR, general SIP requirements mandate that the SIP must also include all regulatory requirements related to monitoring, recordkeeping, and reporting for the BART controls on the source.

As noted above, the RHR allows states to implement an alternative program in lieu of BART so long as the alternative program can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would BART. Under regulations issued in 2005 revising the regional haze program, EPA made just such a demonstration for the Clean Air Interstate Rule (CAIR) (70 FR 39104, July 6, 2005). EPA's regulations provide that states participating in the

CAIR cap and trade program under 40 CFR part 96 pursuant to an EPA-approved CAIR SIP or which remain subject to the CAIR Federal Implementation Plan (FIP) in 40 CFR part 97, do not require affected BART eligible electric generating units (EGUs) to install, operate, and maintain BART for emissions of SO_2 and NO_x (40 CFR 51.308(e)(4)). Since CAIR is not applicable to emissions of PM, states were still required to conduct a BART analysis for PM emissions from EGUs subject to BART for that pollutant. On December 30, 2011, EPA proposed to find that the trading programs in the Transport Rule would achieve greater reasonable progress towards the national goal than would BART in the states in which the Transport Rule applies (76 FR 82219). EPA also proposed to revise the RHR to allow states to meet the requirements of an alternative program in lieu of BART by participation in the trading programs under the Transport Rule. EPA has not taken final action on that rule.

E. Long-Term Strategy (LTS)

Consistent with the requirement in section 169A(b) of the CAA that states include in their regional haze SIP a 10 to 15 year strategy for making reasonable progress, section 51.308(d)(3) of the RHR requires that states include a LTS in their regional haze SIPs. The LTS is the compilation of all control measures a state will use during the implementation period of the specific SIP submittal to meet applicable RPGs. The LTS must include "enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals" for all Class I areas within, or affected by emissions from, the state. 40 CFR 51.308(d)(3).

When a state's emissions are reasonably anticipated to cause or contribute to visibility impairment in a Class I area located in another state, the RHR requires the impacted state to coordinate with the contributing states in order to develop coordinated emissions management strategies. 40 CFR 51.308(d)(3)(i). In such cases, the contributing state must demonstrate that it has included, in its SIP, all measures necessary to obtain its share of the emission reductions needed to meet the RPGs for the Class I area. The RPOs have provided forums for significant interstate consultation, but additional consultations between states may be required to sufficiently address interstate visibility issues. This is especially true where two states belong to different RPOs.

States should consider all types of anthropogenic sources of visibility impairment in developing their LTS, including stationary, minor, mobile, and area sources. At a minimum, states must describe how each of the following seven factors listed below are taken into account in developing their LTS: (1) emission reductions due to ongoing air pollution control programs, including measures to address Reasonably Attributable Visibility Impairment; (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state for these purposes; (6) enforceability of emissions limitations and control measures; and (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS. 40 CFR 51.308(d)(3)(v).

F. Coordinating Regional Haze and Reasonably Attributable Visibility Impairment (RAVI) LTS

As part of the RHR, EPA revised 40 CFR 51.306(c) regarding the LTS for RAVI to require that the RAVI plan must provide for a periodic review and SIP revision not less frequently than every three years until the date of submission of the state's first plan addressing regional haze visibility impairment, which was due December 17, 2007, in accordance with 40 CFR 51.308(b) and (c). On or before this date, the state must revise its plan to provide for review and revision of a coordinated LTS for addressing RAVI and regional haze, and the state must submit the first such coordinated LTS with its first regional haze SIP. Future coordinated LTS's, and periodic progress reports evaluating progress towards RPGs, must be submitted consistent with the schedule for SIP submission and periodic progress reports set forth in 40 CFR 51.308(f) and 51.308(g), respectively. The periodic review of a state's LTS must report on both regional haze and RAVI impairment and must be submitted to EPA as a SIP revision.

G. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(d)(4) of the RHR includes the requirement for a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the state. The strategy must be coordinated with the monitoring strategy required in section 51.305 for RAVI. Compliance with this requirement may be met through "participation" in the IMPROVE network, i.e., review and use of monitoring data from the network. The monitoring strategy is due with the first regional haze SIP and it must be reviewed every five years. The monitoring strategy must also provide

for additional monitoring sites if the IMPROVE network is not sufficient to determine whether RPGs will be met.

The SIP must also provide for the following:

- Procedures for using monitoring data and other information in a state with mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas both within and outside the state;
- Procedures for using monitoring data and other information in a state with no mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas in other states;
- Reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state, and where possible, in electronic format;
- Developing a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. A state must also make a commitment to update the inventory periodically; and
- Other elements, including reporting, recordkeeping, and other measures necessary to assess and report on visibility.

The RHR requires control strategies to cover an initial implementation period extending to the year 2018, with a comprehensive reassessment and revision of those strategies, as appropriate, every 10 years thereafter. Periodic SIP revisions must meet the core requirements of section

51.308(d) with the exception of BART. The requirement to evaluate sources for BART applies only to the first regional haze SIP. Facilities subject to BART must continue to comply with the BART provisions of section 51.308(e), as noted above. Periodic SIP revisions will assure that the statutory requirement of reasonable progress will continue to be met.

H. Consultation with States and Federal Land Managers (FLMs)

The RHR requires that states consult with FLMs before adopting and submitting their SIPs. 40 CFR 51.308(i). States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessment of impairment of visibility in any Class I area and to offer recommendations on the development of the RPGs and on the development and implementation of strategies to address visibility impairment. Further, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

III. What is EPA's Analysis of Maryland's Regional Haze Submittal?

On February 13, 2012, the MDE submitted revisions to the Maryland SIP to address regional haze as required by EPA's RHR.

A. Affected Class I Areas

Maryland has no Class I areas within its borders, but has been identified as influencing the visibility impairment of the following Class I areas: Acadia National Park, Brigantine National Wildlife Refuge, and Lye Brook Wilderness Area as well as the Dolly Sods Wilderness, Otter Creek Wilderness, and Shenandoah National Park. Maryland is responsible for developing a regional haze SIP that addresses these Class I areas, that describes its long-term emission strategy, its role in the consultation processes, and how the SIP meets the other requirements in EPA's regional haze regulations. However, since Maryland has no Class I areas within its borders, Maryland is not required to address the following Regional Haze SIP elements: a) calculation of baseline and natural visibility conditions; b) establishment of reasonable progress goals; c) monitoring requirements, and d) RAVI requirements.

B. LTS/Strategies

As described in section II. E of this action, the LTS is a compilation of state-specific control measures relied on by the state to obtain its share of emission reductions to support the RPGs established by the impacted Class I area states. Maryland's LTS for the first implementation period addresses the emissions reductions from federal, state, and local controls that take effect in the State from the baseline period starting in 2002 until 2018. Maryland participated in the MANE-VU regional strategy development process. As a participant, Maryland supported a regional approach towards deciding which control measures to pursue for regional haze, which was based on technical analyses documented in the following reports: a) Contributions to Regional Haze in the Northeast and Mid-Atlantic United States; b) Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas; c) Five-Factor Analysis of BART-

Eligible Sources: Survey of Options for Conducting BART Determinations; and d) Assessment of Control Technology Options for BART-Eligible Sources: Steam Electric Boilers, Industrial Boilers, Cement Plants and Paper, and Pulp Facilities.

The LTS was developed by MANE-VU, in coordination with Maryland, identifying the emissions units within Maryland that likely have the largest impacts currently on visibility at the impacted Class I areas, estimating emissions reductions for 2018, based on all controls required under federal and state regulations for the 2002-2018 period (including BART), and comparing projected visibility improvement with the uniform rate of progress for these impacted Class I areas. Maryland's LTS includes measures needed to achieve its share of emissions reductions agreed upon through the consultation process with the impacted Class I area states and includes enforceable emissions limitations, compliance schedules, and other measures necessary to achieve the reasonable progress goals established by these Class I area states.

1. Emissions Inventory for 2018 with Federal and State Control Requirements

The emissions inventory used in the regional haze technical analyses was developed by MARAMA for MANE-VU with assistance from Maryland. The 2018 emissions inventory was developed by projecting 2002 emissions, and assuming emissions growth due to projected increases in economic activity as well as applying reductions expected from federal and state regulations affecting the emissions of VOC and the visibility-impairing pollutants NO_x, PM_{10}, $PM_{2.5}$, and SO_2. The BART guidelines direct states to exercise judgment in deciding whether VOC and NH_3 impair visibility in their Class I area(s). As discussed further in section III.B.3, of this notice. MANE-VU demonstrated that anthropogenic emissions of sulfates are the major

contributor to $PM_{2.5}$ mass and visibility impairment at Class I areas in the Northeast and Mid-Atlantic region. It was also determined that the total ammonia emissions in the MANE-VU region are extremely small. In addition, since VOC emissions are aggressively controlled through the Maryland SIP, the pollutants Maryland considered under BART are NO_x, PM_{10}, $PM_{2.5}$, and SO_2.

MANE-VU developed emissions inventories for four inventory source classifications: 1) stationary point sources; 2) area sources; 3) off-road mobile sources; and 4) on-road mobile sources. The New York Department of Environmental Conservation also developed an inventory of biogenic emissions for the entire MANE-VU region. Stationary point sources are those sources that emit greater than a specified tonnage per year, depending on the pollutant, with data provided at the facility level. Stationary area sources are those sources whose individual emissions are relatively small, but due to the large number of these sources, the collective emissions from the source category could be significant. Off-road mobile sources are equipment that can move but do not use the roadways. On-road mobile source emissions are automobiles, trucks, and motorcycles that use the roadway system. The emissions from these sources are estimated by vehicle type and road type. Biogenic sources are natural sources like trees, crops, grasses, and natural decay of plants. Stationary point sources emission data is tracked at the facility level. For all other source types emissions are summed on the county level.

There are many federal and state control programs being implemented that MANE-VU and Maryland anticipate will reduce emissions between the baseline period and 2018. Emission

reductions from these control programs were projected to achieve substantial visibility improvement by 2018 in the impacted Class I areas. To assess emissions reductions from ongoing air pollution control programs, BART, and reasonable progress goals MANE-VU developed 2018 emissions projections called Best and Final. The emissions inventory provided by the State of Maryland for the Best and Final 2018 projections is based on adopted and enforceable requirements.

The ongoing air pollution control programs relied upon by Maryland for the Best and Final projections include: Maryland's Healthy Air Act (HAA); the NO_x SIP Call; NO_x and/or VOC reductions from the control rules in the 1-hour and 8-hour ozone SIPs for Maryland; NO_x OTC 2001 Model Rule for Industrial, Commercial, and Institutional (ICI) Boilers; Federal 2007 heavy duty diesel engine standards for non-road trucks and buses; Federal Tier 2 tailpipe controls for the on-road vehicles; Federal large spark ignition and recreational vehicle controls; and EPA's non-road diesel rules. Maryland also relied on emission reductions from various federal Maximum Achievable Control Technology (MACT) rules in the development of the 2018 emission inventory projections. These MACT rules include the combustion turbine and reciprocating internal combustion engines MACT, the industrial boiler and process heaters MACT and the 2, 4, 7, and 10 year MACT standards.

On July 30, 2007, the U.S. District Court of Appeals mandated the vacatur and remand of the Industrial Boiler MACT Rule.[6] This MACT was vacated since it was directly affected by the vacatur and remand of the Commercial and Industrial Solid Waste Incinerator (CISWI) Definition Rule. EPA proposed a new Industrial Boiler MACT rule to address the vacatur on

[6] NRDC v. EPA, 489F.3d 1250.

June 4, 2010 (75 FR 32006), and issued a final rule on March 21, 2011 (76 FR 15608). The MANE-VU modeling included emission reductions from the vacated Industrial Boiler MACT rule. Maryland did not redo its modeling analysis when the rule was re-issued. However, the expected reductions in SO_2 and PM are small relative to the Maryland inventory. Therefore, EPA finds the expected reductions of the new rule acceptable since the final rule requires compliance by 2014, it provides Maryland time to assure the required controls are in place prior to the end of the first implementation period in 2018. In addition, the RHR requires that any resulting differences between emissions projections and actual emissions reductions that may occur will be addressed during the five-year review prior to the next 2018 regional haze SIP.

Tables 1 and 2 are summaries of the 2002 baseline and 2018 estimated emissions inventories for Maryland. The 2018 estimated emissions include emission reductions due to ongoing emission control strategies, BART, and reasonable progress goals as well as emission growth. As seen in Table 2, the 2018-point source emission estimates for PM and NH_3 are larger than the 2002 baseline, however, the affected Class I areas are still able to meet the reasonable progress goals.

Table 1. 2002 Emission Inventory Summary for Maryland in Tons Per Year

	VOC	NO_x	$PM_{2.5}$	PM_{10}	NH_3	SO_2
Point	6,184	95,328	5,054	12,752	305	290,927
Area	120,254	15,678	30,693	96,176	25,834	12,393
On-Road Mobile	61,846	122,210	2,200	3,168	5,594	4,057
Off-Road Mobile	56,330	37,472	4,357	4,936	28	7,941
Biogenic	210,104	2,934	-	-	-	-
Total	**454,718**	**273,622**	**42,304**	**117,032**	**31,761**	**315,318**

Table 2. 2018 Emission Summary for Maryland "Best and Final" in Tons Per Year						
	VOC	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**NH_3**	**SO_2**
Point	6,854	33,597	9,934	14,080	845	82,650
Area	104,615	17,746	30,153	117,066	38,155	9,118
On-Road Mobile	20,861	29,371	1,045	1,099	7,279	682
Off-Road Mobile	37,969	24,257	3,301	3,814	36	577
Biogenic	210,104	2,934	-	-	-	-
Total	**380,403**	**107,905**	**44,433**	**136,059**	**46,315**	**93,027**

2. Modeling to Support the LTS and Determine Visibility Improvement for Uniform Rate of Progress

MANE-VU performed modeling for the regional haze LTS for the 11 Mid-Atlantic and Northeast states and the District of Columbia. The modeling analysis is a complex technical evaluation that began with selection of the modeling system. MANE-VU used the following modeling system:

- Meteorological Model: The Fifth-Generation Pennsylvania State University/National Center for Atmospheric Research (NCAR) Mesoscale Meteorological Model (MM5) version 3.6 is a nonhydrostatic, prognostic meteorological model routinely used for urban- and regional-scale photochemical, $PM_{2.5}$, and regional haze regulatory modeling studies.
- Emissions Model: The Sparse Matrix Operator Kernel Emissions (SMOKE) version 2.1 modeling system is an emissions modeling system that generates hourly gridded

speciated emission inputs of mobile, non-road mobile, area, point, fire, and biogenic emission sources for photochemical grid models.

- Air Quality Model: The EPA's Models-3/Community Multiscale Air Quality (CMAQ) version 4.5.1 is a photochemical grid model capable of addressing ozone, PM, visibility and acid deposition at a regional scale.
- Air Quality Model: The Regional Model for Aerosols and Deposition (REMSAD), version 8, is a Eulerian grid model that was primarily used to determine the attribution of sulfate species in the Eastern US via the species-tagging scheme.
- Air Quality Model: The California Puff Model (CALPUFF), version 5 is a non-steady-state Lagrangian puff model used to access the contribution of individual states' emissions to sulfate levels at selected Class I receptor sites.

CMAQ modeling of regional haze in the MANE-VU region for 2002 and 2018 was carried out on a grid of 12x12 kilometer (km) cells that covers the 11 MANE-VU states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont) and the District of Columbia and states adjacent to them. This grid is nested within a larger national CMAQ modeling grid of 36x36 km grid cells that covers the continental United States, portions of Canada and Mexico, and portions of the Atlantic and Pacific Oceans along the east and west coasts. Selection of a representative period of meteorology is crucial for evaluating baseline air quality conditions and projecting future changes in air quality due to changes in emissions of visibility-impairing pollutants. MANE-VU conducted an in-depth analysis which resulted in the selection of the entire year of 2002 (January 1-December 31) as the best period of meteorology available for conducting the CMAQ

modeling. The MANE-VU states modeling was developed consistent with EPA's *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze*, located at *http://www.epa.gov/scram001/guidance/guide/final-03-pm-rh-guidance.pdf, (EPA-454/B-07-002), April 2007, and EPA document, Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations,* located at *http://www.epa.gov/ttnchie1/eidocs/eiguid/index.html, EPA-454/R-05-001, August 2005, updated November 2005 ("EPA's Modeling Guidance").*

MANE-VU examined the model performance of the regional modeling for the areas of interest before determining whether the CMAQ model results were suitable for use in the regional haze assessment of the LTS and for use in the modeling assessment. The modeling assessment predicts future levels of emissions and visibility impairment used to support the LTS and to compare predicted, modeled visibility levels with those on the uniform rate of progress. In keeping with the objective of the CMAQ modeling platform, the air quality model performance was evaluated using graphical and statistical assessments based on measured ozone, fine particles, and acid deposition from various monitoring networks and databases for the 2002 base year. MANE-VU used a diverse set of statistical parameters from the EPA's Modeling Guidance to stress and examine the model and modeling inputs. Once MANE-VU determined the model performance to be acceptable, MANE-VU used the model to assess the 2018 RPGs using the current and future year air quality modeling predictions, and compared the RPGs to the uniform rate of progress.

In accordance with 40 CFR 51.308(d)(3), the State of Maryland provided the appropriate supporting documentation for all required analyses used to determine the State's LTS. The technical analyses and modeling used to develop the glidepath and to support the LTS are consistent with EPA's RHR, and interim and final EPA Modeling Guidance. EPA accepts the MANE-VU technical modeling to support the LTS and determine visibility improvement for the uniform rate of progress because the modeling system was chosen and used according to EPA Modeling Guidance. EPA agrees with the MANE-VU model performance procedures and results, and that the CMAQ is an appropriate tool for the regional haze assessments for the Maryland LTS and regional haze SIP.

3. Relative Contributions of Pollutants to Visibility Impairment

An important step toward identifying reasonable progress measures is to identify the key pollutants contributing to visibility impairment at each Class I area. To understand the relative benefit of further reducing emissions from different pollutants, MANE-VU developed emission sensitivity model runs using CMAQ to evaluate visibility and air quality impacts from various groups of emissions and pollutant scenarios in the Class I areas on the 20% worst visibility days.

Regarding which pollutants are most significantly impacting visibility in the MANE-VU region, MANE-VU's contribution assessment demonstrated that sulfate is the major contributor to $PM_{2.5}$ mass and visibility impairment at Class I areas in the Northeast and Mid-Atlantic Region. Sulfate particles commonly account for more than 50% of particle-related light extinction at northeastern Class I areas on the clearest days and for as much as or more than 80% on the haziest days. In particular, for the Brigantine National Wildlife Refuge Class I area (the most

impacted Class I area), sulfate accounted for 66% of the particle extinction on the 20% worst visibility days in 2000 – 2004. After sulfate, organic carbon (OC) consistently accounts for the next largest fraction of light extinction. Organic carbon accounted for 13% of light extinction on the 20% worst visibility days for Brigantine, followed by nitrate that accounts for 9% of light extinction.

The emissions sensitivity analyses conducted by MANE-VU predict that reductions in SO_2 emissions from EGU and non-EGU industrial point sources will result in the greatest improvements in visibility in the Class I areas in the MANE-VU region, more than any other visibility-impairing pollutant. As a result of the dominant role of sulfate in the formation of regional haze in the Northeast and Mid-Atlantic Region, MANE-VU concluded that an effective emissions management approach would rely heavily on broad-based regional SO_2 control efforts in the eastern United States.

4. RPG

Since the State of Maryland does not have a Class I area, it is not required to establish RPGs. However, Maryland has been identified as influencing the visibility impairment of the following Class I areas; Acadia National Park, Brigantine National Wildlife Refuge, and Lye Brook Wilderness Area, as well as, the Dolly Sods Wilderness, Otter Creek Wilderness, and Shenandoah National Park. As such, Maryland participated in consultations to discuss the reasonable progress goals being considered by MANE-VU for the affected Class I areas. As a result, the MANE-VU Class I area states adopted four RPGs that will provide for reasonable progress towards achieving natural visibility: timely implementation of BART requirements; a

90% reduction in SO_2 emissions from each of the EGU stacks identified by MANE-VU comprising a total of 167 stacks (12 are located in Maryland); adoption of a low sulfur fuel oil strategy; and continued evaluation of other control measures to reduce SO_2 and NO_x emissions.

In order to address a timely implementation of BART, as described in section III B. 5. of this notice, the Maryland HAA was determined to be better than BART for NO_x and SO_2 emissions. The first phase of the emission limits became effective in 2009/2010 timeframe and the second phase will become effective in the 2012/2013 timeframe. The BART limitation became effective in calendar year 2010 for the PM control strategies identified in section III.B.5.

States were asked to reduce SO_2 emissions from the highest emission stacks in the eastern United States by 90% or if it was infeasible to achieve that level of reduction, an alternative had to be identified which could include other point sources. Maryland's Brandon Shores Units 1 and 2, C.P. Crane Units 1 and 2, Chalk Point Units 1 and 2, Dickerson Units 1, 2 and 3, Wagner Unit 3 and Morgantown Units 1 and 2 are twelve of the 167 units identified by MANE-VU as having the highest emissions in the eastern United States. The 2002 base year SO_2 emissions from these twelve units are 235,435 tons per year. A 90% SO_2 emission reduction from these twelve units would result in a reduction of 211,892 tons per year. However, the SO_2 emission reductions that have already resulted from the implementation of the Maryland HAA for these twelve units are 257,741 tons per year. These reductions are more than enough to satisfy the 90% emission reduction from the 2002 baseline requirements. In addition, the remaining EGU units subject to the HAA they provide an additional 11,703 of SO_2 emission reductions. Maryland's

consideration of all of the emission reductions from the implementation of the HAA resulted in a surplus of 57,553 tons per year of SO_2 emission reductions.

The low sulfur fuel oil strategy has four requirements for the State of Maryland. These requirements are to reduce the distillate oil to 0.05% sulfur by weight (500 parts per million (ppm)) no later than 2014, #4 residual oil to 0.25% - 0.5% sulfur by weight no later than 2018, #6 residual oil to 0.5% sulfur by weight no later than 2018, and further reduce the sulfur content of distillate oil to 15 ppm by 2018. Table 3 shows the SO_2 emission reductions in tons per year (TPY) that would result from the implementation of a low sulfur fuel oil strategy in Maryland.

Table 3. Reasonable Progress Goal – Low Sulfur Fuel Oil Strategy	
Low Sulfur Fuel Oil Strategy	**2018 SO_2 Emissions Reductions (TPY) Based on the Low Sulfur Fuel Oil Strategy Request**
Residual and #4 Fuel Oil (assumes 0.5% sulfur)	1,344.1
Distillate (15 ppm sulfur)	6,129.3
Total	**7,473.4**

As noted in Table 3, since Maryland has not adopted a low sulfur fuel oil strategy, the state has a deficiency of 7,473.4 TPY of SO_2 emissions. However, as noted above, Maryland has a surplus of SO_2 emission reductions of 57,552 TPY resulting from the HAA. This surplus accounts for the SO_2 emission reductions needed to meet the requirements of the low sulfur fuel strategy.

5. BART

BART is an element of Maryland's LTS. The BART Regional Haze requirement consists of three components: (a) identification of all the BART eligible sources; (b) an assessment of

whether the BART eligible sources are subject to BART; and (c) the determination of the BART controls.

The first component of a BART evaluation is to identify all the BART eligible sources. The BART eligible sources were identified by utilizing the criteria in the BART Guidelines as follows:

- Determine whether one or more emissions units at the facility fit within one of the 26 categories listed in the BART Guidelines (70 FR 39158-39159);
- Determine whether the emission unit(s) was in existence on August 7, 1977 and begun operation after August 6, 1962;
- Determine whether potential emissions of SO_2, NO_x, and PM_{10} from subject units are 250 tons or more per year.

The BART guidelines recommend addressing SO_2, NO_x, and PM_{10} as visibility-impairment pollutants and leave it up to the discretion of states to evaluate VOC or ammonia emissions. Because of the lack of tools available to estimate emissions and subsequently model VOC and ammonia effects on visibility, and because Maryland is aggressively addressing VOCs through its ozone SIPs, Maryland determined that SO_2, NO_x and $PM_{10/2.5}$ are the only reasonable contributing visibility impairing pollutants to target under BART.

Maryland identified seven BART eligible sources (consisting of ten emission units) as described in Table 4. However, it was later determined that Mettiki Coal Corporation should not be included in the BART eligible list since the source was not in existence by August 7, 1977. The

source did not meet EPA's definition of "in existence" (40 CFR 51.301) since EPA did not grant approval of Mettiki Coal Corporation's construction application until February 23, 1978.

	Table 4. Maryland's BART Eligible Sources			
	Facility and Unit	**Plant Capacity in Megawatts**	**Unit Capacity in Megawatts**	**Location**
1	Mirant – Chalk Point Units 1, 2 and 3	> 750	355, 355 and 640	Prince George's
2	Mirant – Morgantown Units 1 and 2	> 750	630 and 630	Charles
3	CPSG – Crane Unit 2	< 750	200	Baltimore
4	CPSG – Wagner Unit 3	> 750	350	Anne Arundel
5	New Page/Westvaco/Luke Paper Unit 25	NA	NA	Allegany
6	Holcim (Independent / St.Lawrence Cement) Unit 24	NA	NA	Washington
7	*Mettiki Coal Corporation Unit 1	NA	NA	Garrett

* This source is not BART eligible

The second component of the BART evaluation is to identify those BART eligible sources that may reasonably be anticipated to cause or contribute to visibility impairment at any Class I area are subject to BART. As discussed in the BART guidelines, a state may choose to consider all BART eligible sources to be subject to BART (70 FR 39.161). Consistent with the MANE-VU Board's decision in June 2004 that because of the collective importance of BART sources, BART determinations should be made by the MANE-VU states for each BART eligible source, unless the sources shutdown or caps-out by accepting a permit limitation restricting their emissions to less than 250 tons per year.

The final component of a BART evaluation is making BART determinations for all BART subject sources. In making BART determinations, section 169A(g)(2) of the CAA requires that states consider the following factors: (1) the costs of compliance; (2) the energy and non-air

quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. Section (e)(2) of the RHR provides that a state may opt to implement an emissions trading program or other alternative measure rather than to require sources subject to BART to install, operate, and maintain BART. To do so, the state must demonstrate that the emissions trading program or other alternative measure will achieve greater reasonable progress than would be achieved through the installation and operation of BART.

Four EGUs in Maryland, the State found to be subject to BART. As discussed below, Maryland chose to address the BART requirements for these sources through an alternative program regulated by COMAR 26.11.27.02, the Maryland HAA (73 FR 51599) that limits SO_2, NOx and mercury emissions from fossil fuel fired generating units. Of the seven EGU facilities subject to the Maryland HAA, only four are facilities subject to BART, as seen in Table 5. Maryland required all of the BART subject facilities to complete full BART analysis, however, Maryland opted to rely on the emission limits from the HAA for NOx and SO_2, as an alternative measure for BART.

Table 5. Maryland HAA Subject Sources and Maryland BART Subject Sources

Maryland's HAA Subject Sources	**Maryland's BART Subject Sources**
Brandon Shores Units 1 and 2	C. P. Crane Unit 2
C. P. Crane Units 1 and 2	Chalk Point Units 1, 2 and 3
Chalk Point Units 1 and 2	Morgantown Units 1 and 2
Dickerson Units 1, 2 and 3	H. A. Wagner Unit 3
H.A. Wagner Units 2 and 3	
Morgantown Units 1 and 2	
*R. Paul Smith Units 3 and 4	

* This facility is not part of Maryland's alternative measures for BART

Maryland's HAA became effective on July 16, 2007, with the first phase requiring reductions in the 2009-2010 timeframe and the second phase of emission control occurring in the 2012-2013 timeframe. The HAA affects Maryland's largest coal-burning power plants, which accounts for 95% of the State's power plant emissions and requires year-round emission controls. The HAA does not allow facilities to obtain out-of-state emissions allowances in lieu of adding pollution control locally. During the first phase of the HAA, NOx emissions were reduced by approximately 70% in 2009 and SO_2 emissions were reduced by approximately 80% in 2010. At full implementation, the HAA will reduce NOx emissions by approximately 75% in 2012 from 2002 levels and SO_2 emissions will be reduced by approximately 85% in 2013 from 2002 levels.

In order to determine appropriate NO_x and SO_2 emission limitations for inclusion in Maryland's HAA, Maryland collected guidance and information from a number of sources to assist in its evaluation of appropriate emission limits. The methods Maryland used to develop the HAA incorporate many of the criteria used in the 5 factor analyses required by the RHR and included the following: (1) control technology effectiveness; (2) costs; (3) complexity with regards to application on cycling units; (4) impact on plant operations and flexibility; (5) operation and maintenance costs; (6) size of the affected units; and (7) technical feasibility.

Of the fifteen units subject to Maryland's HAA, six have been identified as BART units. The HAA incorporates emissions limitations based on a suite of emission reduction technology capabilities. Tables 6 and 7 show Maryland promulgated emission limitations for NO_x and SO_2 in COMAR 26.11.27.02. for the thirteen units subject to the BART alternative plan.

Table 6. HAA Emission Limitations for NOx in TPY			
	Facility	**2002 Baseline (TPY)**	**2012 (TPY)**
1	Brandon Shores Unit 1	6,329	2,414
2	Brandon Shores Unit 2	6,034	2,519
3	C.P. Crane Unit1	6,245	686
4	C.P. Crane Unit 2	4,285	737
5	Chalk Point Unit 1	6,327	1,166
6	Chalk Point Unit 2	6,773	1,223
7	Dickerson Unit 1	2,176	554
8	Dickerson Unit 2	2,358	607
9	Dickerson Unit 3	2,694	575
10	H.A. Wagner Unit 2	1,718	555
11	H.A. Wagner Unit3	2,232	1,115
12	Morgantown Unit 1	10,013	2,094
13	Morgantown Unit 2	8,605	2,079
	Total	65,793	16,324

Table 7. HAA Emission Limitations for SO_2 in TPY			
	Facility	**2002 Baseline (TPY)**	**2013 (TPY)**
1	Brandon Shores Unit 1	20,476	5,392
2	Brandon Shores Unit 2	19,498	5,627
3	C.P. Crane Unit1	17,971	1,532
4	C.P. Crane Unit 2	14,415	1,646
5	Chalk Point Unit 1	23,537	2,606
6	Chalk Point Unit 2	25,194	2,733
7	Dickerson Unit 1	10,205	1,238
8	Dickerson Unit 2	11,061	1,355
9	Dickerson Unit 3	12,636	1,285
10	H.A. Wagner Unit 2	10,095	1,239
11	H.A. Wagner Unit3	6,427	2,490
12	Morgantown Unit 1	37,756	4,678
13	Morgantown Unit 2	32,586	4,646
	Total	241,862	36,468

Maryland did a comparison of the HAA emission limits for thirteen of the fifteen units regulated by this rule to the BART presumptive limits for the seven BART subject units. This comparison resulted in a surplus of 60,805 tons of SO_2 and 16,184 tons of NOx, primarily because the HAA emission limits are applicable to more units than the Maryland BART subject units. The total

emissions reductions achieved by the HAA, greatly exceed those which would be achieved through application of presumptive BART emissions rate limits on BART subject units only.

For PM, Maryland required the BART facilities to conduct an analysis of potential BART control in accordance with 40 CFR 51.308 (e)(1)(ii). However, five of the units have already installed high efficiency electro-static precipitors (ESP) to control PM and one has already installed a fabric filter. The remaining unit has enforceable operational restriction requiring the burning of natural gas for 95% of the total heat input during ozone season. With this existing fuel restriction, it will reduce PM emissions by approximately 90% during ozone season. Mirant Chalk Point Unit 1 is a 355 MW walled fired, dry bottom, supercritical boiler with coal as the primary fuel. This unit is equipped with a cold side ESP to control PM emissions by over 99.5%. Mirant Chalk Point Unit 2 is also a 355 MW walled fired, dry bottom, supercritical boiler with coal as the primary fuel. This unit is also equipped with a cold side ESP to control PM emissions by over 99.5%. Mirant Chalk Point Unit 3 is a 640 MW tangentially fired, sub-critical unit that fire residual fuel oil or natural gas. This cycling unit has operated at an average annual capacity factor of 5% from 2006 to 2009. A consent order requires this unit to operate 95% of the time using natural gas during ozone season (May-September). Since this unit operates primarily during ozone season, the operational restriction on fuel use effectively limit PM emissions by 90%. Mirant Morgantown Unit 1 is a 630 MW tangentially fired, supercritical boiler with coal as the primary fuel. This unit is equipped with a cold side ESP to control PM emissions by over 99.5%. Mirant Morgantown Unit 2 is also a 630 MW tangentially fired, supercritical boiler with coal as the primary fuel. This unit is also equipped with a cold side ESP to control PM emissions by over 99.5%. Crane Unit 2 is a 200 MW utility boiler fired by four

cyclone burners with coal as the primary fuel. This unit is equipped with a fabric filter to control PM emissions by over 99%. Wagner Unit 3 is a 350 MW supercritical once-over coal fired boiler. This unit is equipped with a cold side ESP to control PM emissions by over 99%. Maryland has determined that existing controls for PM meet the BART requirement for all of these units since they reduce PM emissions, are cost–efficient, and have no significant energy or non-air quality environmental benefit. EPA agrees with Maryland's PM BART determination for all of BART subject EGUs.

Maryland has two non-EGU BART sources that were required to conduct BART analyses to satisfy the requirements of 40 CFR 51.308 (e)(1)(ii). Holcim (Independent/St. Lawrence Cement) is a cement manufacturing plant located in Hagerstown, Maryland. The BART analysis was done for the long dry Portland cement kiln. Current controls for PM consist of multi-clones and an electrostatic precipitator. For NOx, the facility currently utilizes a mid-kiln tire firing system with mixing air technology and a low-NOx type burner. For SO_2 the current controls consist of injection of mixing air and inherent dry scrubbing. For this unit, Maryland determined the addition of selective non-catalytic reduction (SNCR) is BART for PM and NOx and current controls are BART for SO_2.

New Page/Westvaco/Luke Paper is a kraft pulp mill with two BART subject power boilers (Units 25 and 26) that share a common exhaust stream and has one recovery boiler (Unit 3). The power boilers are used as the primary and back-up systems for incineration of emissions from non-condensable gas and stripper off gas, the recovery boiler is used to recover chemicals from spent agent pulping liquors and to produce steam for the mill. Unit 25 burns coal as the primary

fuel with natural gas used as a secondary fuel. Unit 26 originally burned oil as the primary fuel, but in 1982 was converted to natural gas. Unit 25 currently has a multi-cyclone mechanical collector in series with a baghouse for control of PM. The boiler is also equipped with an over-five air system, low-NOx burners and a SNCR, installed in 2006, for controlling NOx emissions during ozone season. In a letter dated October 31, 2007, the facility committed to install either a spray dryer absorber or a circulating dry scrubber resulting in approximately 90% emission reduction from the 2002 baseline. Unit 26 currently has no controls. Unit 3 has a two level staged combustion air control system for the control of SO_2 and NOx emissions and the a three-chamber ESP for the control of PM. Maryland determined BART for Unit 25 to be the current controls for PM which consist of multi-cyclones, baghouse and year-round operation of the existing SNCR, low NOx burners, and overfire air for NOx controls and the addition of spray dryer absorber or a circulating dry scrubber for SO_2. For Unit 26, the natural gas fired boiler, Maryland determined BART to be that no add-on controls were necessary since the use of natural gas results in very low emissions of SO_2, NOx, and PM. For Unit 3, the recovery boiler, the current controls consist of two level staged combustion air control system for the control of SO_2 and NOx emissions and the three-chamber ESP for the control of PM. EPA agrees with MDE's analyses and conclusions for the non-EGU BART determinations.

C. Consultation with States and FLMs

On May 10, 2006, the MANE-VU Air Directors adopted the Inter-RPO State/Tribal and FLM Consultation Framework that documented the consultation process within the context of regional haze planning and was intended to create greater certainty and understanding among RPOs. The MANE-VU states held ten consultation meetings and/or conference calls from March 1, 2007

through March 21, 2008. In addition to the MANE-VU members attending these meetings and conference calls, participants from VISTAS, Midwest RPO, and the relevant FLMs were also in attendance. In addition to the conference calls and meeting, the FLMs were given the opportunity to review and comment on each of the technical documents developed by MANE-VU.

On September 22, 2008 and November 18, 2011, Maryland submitted a draft Regional Haze SIP to the relevant FLMs for review and comment pursuant to 40 CFR 51.308(i)(2). In a letter dated January 25, 2012, the FLMs provided comments on the draft Regional Haze SIP in accordance with 40 CFR 51.308(i)(3). The comments received from the FLMs were addressed and included in Appendix C of the Maryland Regional Haze SIP submittal.

On January 6, 2012, the MDE provided public notice of the opportunity to comment on the SIP revision and on February 9, 2012 held the public hearing. To address the requirement for continuing consultation procedures with the FLMs under 40 CFR 51.308(i)(4), Maryland commits in their SIP to ongoing consultation with the FLMs on Regional Haze issues throughout the implementation.

D. Periodic SIP Revisions and Five-Year Progress Reports

Consistent with the requirements of 40 CFR 51.308(g), Maryland has committed to submitting a report on reasonable progress (in the form of a SIP revision) to the EPA every five years following the initial submittal of its regional haze SIP. The reasonable progress report will evaluate the progress made towards the RPGs for the impacted Class I areas.

IV. What Action is EPA Proposing to Take?

EPA is proposing to approve a revision to the Maryland SIP submitted by the State of Maryland through the MDE on February 13, 2012 that addresses regional haze for the first implementation period. EPA is proposing to make a determination that the Maryland Regional Haze SIP contains the emission reductions needed to achieve Maryland's share of emission reductions agreed upon through the regional planning process. Furthermore, Maryland's Regional Haze Plan ensures that emissions from the State will not interfere with the reasonable progress goals for neighboring states' Class I areas. EPA has determined that the Regional Haze Plan submitted by the State of Maryland satisfies the requirements of the CAA. EPA is taking this action pursuant to those provisions of the CAA. Accordingly, EPA is also proposing to find that this revision meets the applicable visibility related requirements of CAA section 110(a)(2) including but not limited to 110(a)(2)(D)(i)(II) and 110(a)(2)(J), relating to visibility protection for the 1997 8-Hour Ozone NAAQS and the 1997 and 2006 $PM_{2.5}$ NAAQS. EPA is soliciting public comments on the issues discussed in this document. These comments will be considered before taking final action.

V. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely proposes to approve state

law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.);
- is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.);
- does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and
- does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally

permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed rule approving Maryland's Regional Haze Plan does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Visibility, Volatile organic compounds.

Authority: 42 U.S.C. 7401 et seq.

Dated: February 15, 2012

Signed: W. C. Early, Acting
Regional Administrator,
Region III.

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